

#### ABSTRACT OF THE DISCLOSURE

There is provided a technique to form a single crystal semiconductor thin film or a substantially single crystal semiconductor thin film. An amorphous semiconductor thin film is irradiated with ultraviolet light or infrared light, to obtain a crystalline semiconductor thin film (102). Then, the crystalline semiconductor thin film (102) is subjected to a heat treatment at a temperature of 900 to 1200°C in a reducing atmosphere. The surface of the crystalline semiconductor thin film is extremely flattened through this step, defects in crystal grains and crystal grain boundaries disappear, and the single crystal semiconductor thin film or substantially single crystal semiconductor thin film is obtained.